



U.S. Department  
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**Federal Aviation  
Administration**

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NOV 17 2003

**Transport Airplane Directorate  
Aircraft Certification Service**

1601 Lind Avenue S.W.  
Renton, Washington 98055-4056

NOV 14 2003

**PENTAR Avionics**

In Reply

Refer To: 130S-03-578

Mr. Bob Rodgers  
General Manager  
PENTAR Communication Systems, LLC  
19820 North Creek Parkway  
Suite 102  
Bothell, WA 98011

Dear Mr. Rodgers:

Technical Standard Order (TSO) C113 Approval for  
PENTAR CMS-1000 Communications Management System

We received your letter, Reference CMS0020.lft.a, dated November 13, 2003, in which you certified that the PENTAR CMS-1000 Communications Management System meets the Federal Aviation Regulations (FAR) Part 21.611(a), and the standards of TSO-C113.

Your certification is acceptable. Your quality control manual PCS-QM, Revision -, dated July 9, 2003, has been approved by the FAA and is on file at the Seattle Manufacturing Inspection District Office (ANM-108S). The following documents, submitted with your letter, have been reviewed and added to our files in support of your application:

| TSO Para.   | TSO Requirement                          | PENTAR Document                                             |
|-------------|------------------------------------------|-------------------------------------------------------------|
| (c)(1)(i)   | Operating instructions.                  | Document 5630-5101-A00, Revision B, dated November 13, 2003 |
| (c)(1)(ii)  | Equipment limitations.                   | Document 5630-5101-A00, Revision B, dated November 13, 2003 |
| (c)(1)(iii) | Installation procedures and limitations. | Document 5630-5101-A00, Revision B, dated November 13, 2003 |
| (c)(1)(iv)  | Schematic drawings.                      | Document 5630-5101-A00, Revision B, dated November 13, 2003 |
| (c)(1)(v)   | Wiring diagrams.                         | Document 5630-5101-A00, Revision B, dated November 13, 2003 |
| (c)(1)(vi)  | Specifications.                          | Document 5100-5100-A00, Revision C, dated December 10, 2002 |
| (c)(1)(vii) | List of major components.                | Document 12922, Revision A, dated January 29, 2002          |

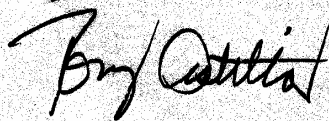
| TSO Para.    | TSO Requirement                           | PENTAR Document                                                                                                                                                                      |
|--------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (c)(1)(viii) | Environmental qualification form.         | Document 5586-5101-A00, Revision -, dated May 9, 2003                                                                                                                                |
| (c)(1)(ix)   | Manufacturer's qualification test report. | Document 5586-5101-A00, Revision -, dated May 9, 2003                                                                                                                                |
| (c)(1)(x)    | Nameplate drawing.                        | Drawing 12747-2AD, Revision D, dated June 12, 2003                                                                                                                                   |
| (c)(1)(xi)   | Software documentation.                   | a. Document 5575-5100-A00, Revision D, dated May 23, 2003<br>b. Document 5000-5101-A00, Revision B, dated June 20, 2003<br>c. Document 5546-5101-A00, Revision -, dated May 23, 2003 |

Please note that TSO-C113 only addresses airborne multipurpose displays. The CMS-1000 incorporates functions that are not addressed by the TSO. As such, this TSO authorization is in no manner intended to provide endorsement of the safety or performance of the extra functions or their installation on an individual aircraft. However, the FAA concurs that PENTAR has provided adequate substantiation that all of the software associated with the CMS-1000 meets the standards of DO-178B Level D.

Effective this date, you are authorized to use TSO procedures as prescribed in Subpart O of FAR Part 21, and to identify the CMS-1000 with the applicable TSO markings as required by TSO-C113. This office must be notified of any design or manufacturing change to the CMS-1000 as outlined in FAR Part 21.611(a), with minor change submittals not to exceed six months. As a TSO manufacturer, you are required to report to the FAA any failure, malfunction, or defect related to your TSO authorization in accordance with the provisions of FAR Part 21.613. You must also notify the FAA when you no longer manufacture the TSO-approved article, as required by FAR Part 21.613(b).

This authorization pertains only to manufacturing operations at the above address, and this office must be notified in advance of any proposed relocation. If you have any questions, please contact Ms. Susan Letcher at telephone (425) 917-6474.

Sincerely,

  
by  
Jeffrey E. Duven  
Acting Manager, Seattle Aircraft  
Certification Office